

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION CONCERNING
TRANSMITTAL OF COPY OF INTERNATIONAL
PRELIMINARY REPORT ON PATENTABILITY
(CHAPTER I OF THE PATENT COOPERATION
TREATY)
(PCT Rule 44bis.1(c))

Date of mailing (day/month/year)
28 August 2008 (28.08.2008)

To:

SMITH, Andrew, V.
Fotonation IP Dept
800 Airport Blvd.
Suite 522
Burlingame, CA 94010
ETATS-UNIS D'AMERIQUE

Applicant's or agent's file reference
FN142-PCT

IMPORTANT NOTICE

International application No.
PCT/US2007/062090

International filing date (day/month/year)
13 February 2007 (13.02.2007)

Priority date (day/month/year)
14 February 2006 (14.02.2006)

Applicant

FOTONATION VISION LIMITED et al

The International Bureau transmits herewith a copy of the international preliminary report on patentability (Chapter I of the Patent Cooperation Treaty)

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Authorized officer

Philippe Becamel

Facsimile No. +41 22 338 82 70

e-mail: pt12.pct@wipo.int

PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)
(PCT Rule 44bis)

Applicant's or agent's file reference FN142-PCT	FOR FURTHER ACTION		See item 4 below
International application No. PCT/US2007/062090	International filing date (<i>day/month/year</i>) 13 February 2007 (13.02.2007)	Priority date (<i>day/month/year</i>) 14 February 2006 (14.02.2006)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant FOTONATION VISION LIMITED			

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis,1(a).

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input type="checkbox"/>	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis,3(c) and 93bis,1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis,2).

		Date of issuance of this report 19 August 2008 (19.08.2008)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70		Authorized officer Philippe Becamel e-mail: pt12.pct@wipo.int

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: Andrew V. Smith
Jackson & Co., LLP
6114 La Salle Ave., #507
Oakland, California 94611-2802

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

		Date of mailing (day/month/year) 10 MAR 2008
Applicant's or agent's file reference FN142-PCT		FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/US 07/62090	International filing date (day/month/year) 13 February 2007 (13.02.2007)	Priority date (day/month/year) 14 February 2006 (14.02.2006)
International Patent Classification (IPC) or both national classification and IPC IPC(8) - G06K 9/40 (2007.01) USPC - 382/275		
Applicant Fotonation Vision Limited		

1. This opinion contains indications relating to the following items:

Box No. I Basis of the opinion

Box No. II Priority

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

Box No. IV Lack of unity of invention

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Box No. VI Certain documents cited

Box No. VII Certain defects in the international application

Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Date of completion of this opinion 27 August 2007 (27.08.2007)	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US 07/62090

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - the international application in the language in which it was filed.
 - a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of:
 - a. type of material
 - a sequence listing
 - table(s) related to the sequence listing
 - b. format of material
 - on paper
 - in electronic form
 - c. time of filing/furnishing
 - contained in the international application as filed
 - filed together with the international application in electronic form
 - furnished subsequently to this Authority for the purposes of search
4. In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	NONE	YES
	Claims	1-20	
Inventive step (IS)	Claims	NONE	YES
	Claims	1-20	
Industrial applicability (IA)	Claims	1-20	YES
	Claims	NONE	

2. Citations and explanations:

Claims 1-20 lack novelty under PCT Article 33(2) as being anticipated by US 2005/0238230 A1 Yoshida et al. (hereinafter 'Yoshida').

Regarding claims 1, 5, 7 and 9, Yoshida teaches a method for detecting non-red eye flash (white eye) defects in an image, said method comprising:

- (a) defining one or more luminous regions in said image, each region having at least one pixel having luminance above a luminance threshold value and a redness below a red threshold value (para [0053]-[0057]);
- (b) applying at least one filter to a region corresponding to each luminous region (para [0048]);
- (c) calculating the roundness (round eye shape) of a region corresponding to each luminous region (para [0049], [0051], para [0059]); and
- (d) in accordance with said filtering and said roundness, determining whether said region corresponds to a non-red eye flash defect (para [0003], [0047], [0053]-[0058], [0060], [0062]).

Regarding claim 2, Yoshida teaches said defining comprises:

- (i) selecting pixels of the image which have a luminance above a luminance threshold value and a redness below a red threshold value (para [0053]-[0057]); and
- (ii) grouping neighboring selected pixels into said one or more luminous regions (para [0058], [0059]).

Regarding claim 3, Yoshida teaches correcting said non-red eye flash defect (para [0049]).

Regarding claim 4, Yoshida teaches said at least one filter comprises:

- (i) a size filter for determining if said region is greater than a size (eye area) expected for said non-red flash defect (para [0049], [0051], [0058]);
- (ii) a filter for adding (correction / enhancement) pixels to a luminous region located with said luminous region and which have luminance below said luminance threshold value or a redness above said red threshold value (para [0059], [0062]);
- (iii) a skin filter for determining if said region is located within a region of an image characteristic of skin (para [0053], [0058], [0060]); or
- (iv) a face filter for determining if said region is located within a region of an image characteristic of a face, or combinations thereof (para [0051], [0060]).

Regarding claims 6 and 16, Yoshida teaches the method further comprising:

- (i) selecting a bright pixel as a seed (starting) pixel (para [0057], [0058]); and
- (ii) iteratively aggregating outwardly (fig 7) from the seed pixel to combine those pixels that are not valley points with the seed pixel as an aggregated region until a minimum number of non-valley neighbors (threshold or candidate adjacent / neighbor pixels) are left or a threshold size is reached, or a combination thereof (para [0058], [0059]).

Regarding claims 8 and 18, Yoshida teaches computing an intensity gradient for one or more candidate regions (para [0060], [0066]).

Regarding claim 10, Yoshida teaches a digital camera or camera phone, a general purpose, portable or hand-held computer, a printer or a digital scanner, or combinations thereof (para [0042], [0045], [0048]).

Regarding claim 11, Yoshida, teaches one or more digital storage devices having executable program code embodied thereon for programming one or more processors (para [0046], [0072]) to perform a method of correcting a white eye defect in a digital image (fig 4, 6, 7), the method comprising:

- (a) acquiring a digital image (para [0045], [0047]);
- (b) determining a luminance of pixels within the digital image (para [0049], [0050]);
- (c) selecting those pixels having a luminance above a certain threshold as candidate regions for correction of a white eye defect (para [0053]-[0058], [0060], [0062]);
- (d) filtering the selected pixels (para [0048]); and
- (e) correcting the white eye defect for non-filtered pixels among the selected pixels (para [0049]).

Regarding claim 12, Yoshida teaches the filtering comprises geometrical filtering (spatial filtering of the eye area based on the distribution pattern) of pixels based on a size or shape or both of a selected pixel region (para [0049], [0051], [0058]).

-SEARCH CONTINUED IN SUPPLEMENTAL BOX-

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US 07/62090

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

Box No. V. 2. Citations and explanations:

Regarding claim 13, Yoshida teaches the filtering comprises geometrical filtering of pixels based on a size of a selected pixel region (window) being above a threshold size (para [0049], [0051], [0053]-[0058]).

Regarding claim 14, Yoshida teaches the correcting comprising calculating a roundness (round eye shape) of a selected pixel region (para [0049], [0051], para [0059]), and correcting the roundness (contour enhancement) if it does not exceed a certain threshold value of roundness (para [0059], [0060]).

Regarding claim 15, Yoshida teaches the filtering comprises checking whether an average saturation (intensity / brightness) of a selected pixel region exceeds a certain threshold saturation, and correcting the selected pixel region only if the threshold is exceeded (para [0060]-[0065]).

Regarding claim 17, Yoshida teaches smoothing (contour and/or luminance distribution / gradation enhancement) the aggregated region (para [0059], [0060], [0066]).

Regarding claim 19, Yoshida teaches filtering a candidate region that comprises merely a glint (para [0053], [0057] and fig 5-6).

Regarding claim 20, Yoshida teaches detecting and correcting a red (hue or chrominance) eye defect within the digital image (para [0042], [0049], [0054], [0063], [0064]).

Claims 1-20 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.